

The effect of a biostimulator on the growth, development and yield of oily sunflower

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ABSTRACT

The article examines the effect of VL-77 biostimulator on the growth, development and yield of oilseed sunflower variety "Dilbar" in the conditions of typical irrigated gray soils of Tashkent region by cultivating seeds for sowing in the field in 6 different doses and 2-4 leaves. The stems and leaves were processed.

Keywords. Oily sunflower, variety, seeds, options, drug, biostimulator, consumption rate, yield, basket, growing season, tray.

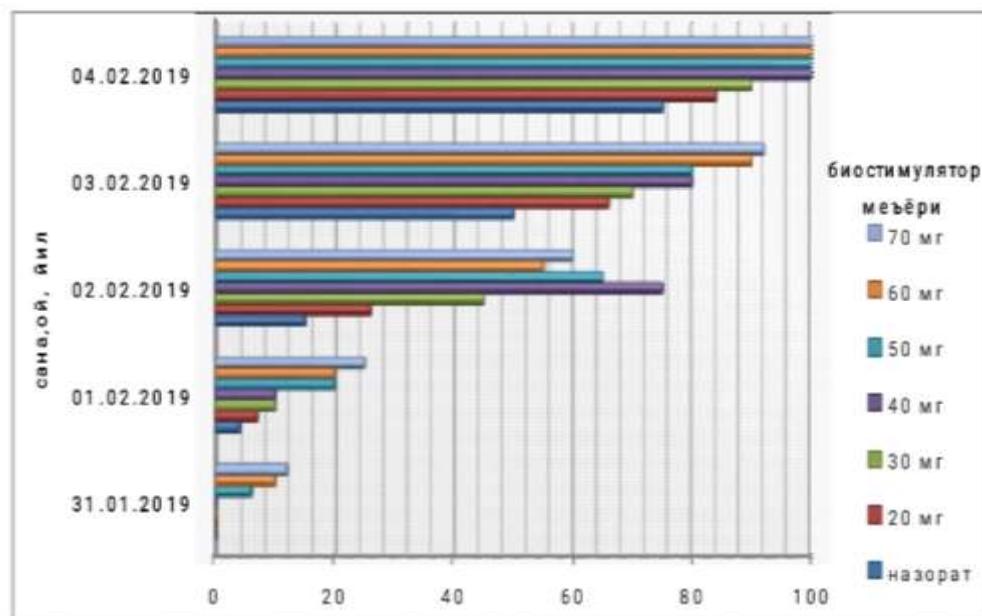
1. Introduction

In our country, special attention is paid to the consistent development of the chemical industry, the expansion of production of various chemical products for agriculture. Our scientists are creating new types of fertilizers and biostimulants, produced on the basis of local raw materials, which accelerate the growth of plants, increase their productivity, resistance to various diseases and frost. The degree to which the problem has been studied. VL-77 is designed for processing seeds and growing crops, increasing the effectiveness of pesticides and fertilizers by 20-30%; increases productivity, increases protein, gluten, sugar and other substances in the crop; increases disease resistance of crops by 1.5-2 times; increases the heat resistance of crops by 26-34% and drought resistance by 35-40%; improves the natural appearance of fruits and vegetables, prolongs shelf life. With timely and high-quality application of the drug, crop yields increase by 10-30% per hectare.

2. Main part

Research conditions and methods. Field experiments were conducted at the experimental farm of the State Unitary Enterprise "Center for Innovative Development and Consulting in Agriculture" under the Tashkent State Agrarian University. Field experiments are based on the methodology of UzPITI "Methods of conducting field experiments" (2007) and the recommendations of the Experimental Station of Oilseeds and Fiber Crops of Uzbekistan. Lukomes's manual "Methods of proving the use of agrotechnical opitov with oil cultures" (2010) was used. Dilbar variety, VL-77 (Vimpel) biostimulator, included in the State Register of sunflower, was studied. VL-77 (Vimpel) biostimulator - A plant growth stimulator. Ingredients: Polyethylene oxides - 770 g / l and washed salt humic acids -30 g / l. Research results. In order to study the effect of VL-77 biostimulator on the germination of oilseed sunflower seeds "Dilbar", the seeds were selected and 100 sunflower seeds were treated in each sand tray with biostimulator in 6 different doses on January 29. planted and placed in a thermostat at a temperature of 20 °.

Diagram - 1



Effect of biostimulator VL-77 on seed germination of Dilbar variety (in laboratory conditions)

On January 31, 2 days after sowing, the seeds in trays 5, 6 and 7 appeared on the sand surface. In these variants 6–12 seeds germinated. On February 1, seeds were germinated in all trays in the experiment, and most seed germination was observed in trays (4–7 units) that consumed a control and 20 mg / ha bilstimulator.

In the fifth tray using a biostimulator at a dose of 50, 60.70 mg, the initial stem of 20–25 seeds per 100 seeds was observed on the surface of the sand on 1 February, while 100 seeds were found to germinate on 4 February.

The use of 20 mg of the biostimulator did not give good results, at this rate, 84 seeds germinated in the tray using the biostimulator on February 4, which was 9 seeds more than in the control tray.

This means that the biostimulator has a positive effect on the germination power of seeds and helps to accelerate their germination.

It was observed that the effect of the biostimulator on the formation of the harvest basket, its diameter, number of seeds and weight was significantly higher.

Table 1
Indications for the effect of biostimulants on the yield elements of sunflower

Options	Biostimulator consumption rate, grams / ha	Basket width, cm	Number of seeds in the basket, pcs	Weight of seeds in the basket, grams	The duration of the growth period	Weight of 1000 seeds, grams	Seed yield, ts / ha
1	par Ha30	29,0	1028,0	85,3	122	83,0	25,5
2	200	32,5	1304,0	116,8	119	89,6	27,8
3	300	34,6	1325,0	119,9	118	90,5	29,7
4	400	36,0	1340,0	122,3	115	91,3	31,0
5	500	37,7	1367,0	125,8	115	92,0	32,8
6	600	38,0	1315,0	118,5	115	90,1	30,0

The front of the harvest baskets is usually disc-shaped and slightly raised, while the back is slightly deeper. When the width of the front of the baskets was measured, it was found that the control variant was 29.0 cm, which was narrower than all the variants in the experiment. In the seventh variant applied at 200 g / ha, 3.5 cm compared to the control variant, 5.6 cm in the variant applied at 300 g / ha, 7.0 cm in the variant applied at 400 g / ha, 8.7 cm in the variant applied at 500 g / ha, and 600 gram / ha was found to be 9.0 cm larger in the applied variant. Increasing the amount of biostimulator to 600 grams / ha led to an increase in the diameter of the baskets and their weight.

The stem of the Dilbar variety of sunflower does not have the ability to branch and form additional baskets, ie bachki, but the applied biofertilizer and biostimulator stems formed additional branches and baskets in a very small size. The experiment in which the VL-77 biostimulator was used did not produce horns and baskets in the variant where control and biofertilizer at the rate of 200 g / ha were used. Produced 0.1 units in the 300 gram / ha and 400 gram / ha variants, and 0.2 in the 500 and 600 gram / ha variants.

The economic ripening of the baskets varied depending on the norm of application of the biostimulator. Yield ripening was observed in 122 days in the control variant, 119 days in the variant with a biostimulant content of 200 g / ha in 119 days in the variant with 300 g / ha, and 115 days in the variant with 400, 500 and 600 g / ha. Yield ripening was found to be 3–7 days later than in the control variant where the biostimulator was used.

It was found that the effect of biostimulator norm on the weight of 1000 seeds was significant. In the control variant without biostimulator, the weight of 1000 seeds was 83.0 grams, while in the variants with biostimulator, the weight of seeds was observed. Weight of 1000 seeds was 6.6 grams in the case of 200 g / ha biostimulator, 7.5 grams in the case of 300 g / ha biostimulator, 8.3 grams in the case of 400 g / ha biostimulator, 500 g / ha in the case of biostimulator. The variant with a biostimulator of 9.0 g and 600 g / ha weighed 7.1 g heavier.

A positive effect of VL-77 biostimulator on productivity was observed. In the control variant, the yield was 25.5 ts / ha, in the variant with a biostimulator at the rate of 200 g / ha - 27.8 ts / ha, in the variant with a dose of 300 g / ha - 29.7 ts / ha, in the variant with the norm of 400 g / ha - 31 , 7 ts / ha, 32.8 ts / ha from the 500 gram / ha norm and 30.0 ts / ha from the 600 gram / ha variant. It can be seen that in the variants using a biostimulator, an increase in yield was observed at the expense of the biostimulator. In the control variant of the biostimulator, the yield increased by 2.3 ts / ha per hectare in the 200 gram / ha variant, by 4.2 ts / ha in the 300 gram / ha variant, and by 5.5 ts / ha in the 400 gram / ha variant. ts / ha, an increase of 7.3 ts / ha compared to the variant with a norm of 500 grams / ha and an increase of 4.5 ts / ha compared to the variant with a norm of 600 grams / ha.

3. Conclusion

The use of VL-77 biostimulator had a positive effect on the growth and development and yield of Dilbar variety of sunflower, the plants were larger and the number of leaves was also higher. When the biostimulator dose of 500 g / ha was applied, the baskets were large, the number of seeds was large, and the weight of the seeds was heavy, and the yield was high, and when this amount was increased or decreased, the baskets were smaller and the number of seeds decreased.

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